

ABSTRACT OF THE DISCLOSURE

A waterless vacuum toilet system for an aircraft includes a toilet bowl connected via a suction valve and a waste collection pipe to a waste collection tank. Waste-contacting surfaces that come into contact with urine and fecal waste are coated with an adhesion-inhibiting or adhesion-reducing nanocoating. The adhesion of waste is significantly reduced, and the need for flushing water is completely eliminated. Instead, an air jet arrangement preferably including an annular ring nozzle or annular air gap directs an airflow into the toilet bowl and along the nanocoated waste-contacting surface thereof, to "air flush" the waste material from these surfaces. The flushing airflow may be induced through the air jet arrangement into the toilet bowl by the suction applied through the suction valve. The "air flushed" toilet system substantially reduces the total system weight and eliminates the need for toilet flushing water to be carried in the aircraft.

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